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**UTHM**

Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION**

**SEMESTER I**

**SESSION 2014/2015**

COURSE : FOOD QUALITY ASSURANCE  
COURSE CODE : BWD 20403  
PROGRAMME : 2 BWD  
EXAMINATION DATE : DECEMBER 2014/JANUARY 2015  
DURATION : 3 HOURS  
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF SIX (6) PAGES

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- Q1** (a) Quality assurance (QA) has gained importance in the past few years in the food industry.
- (i) What is QA and what are the function of the QA department in food industry.  
(7 marks)
  - (ii) Identify **three (3)** fundamental principles which QA is built in the food industry  
(3 marks)
- (b) Compare and contrast between food quality and food safety  
(4 marks)
- (c) Analyze factors affecting quality in manufacturing and processing of foods  
(6 marks)
- Q2** (a) What is ISO 9000? Indicate what is meant when an organization states that they are “ISO 9000 certified”  
(4 marks)
- (b) Differentiate between ISO 9001:2008 with ISO 9004:2009  
(6 marks)
- (c) What would happen if food industry denies in implementing quality management systems (QMS) in their organization?  
(6 marks)
- (d) Find differences between QMS and TQM  
(4 marks)

- Q3**
- (a) Recently, halal food issues has attracted public attention and Malaysia's government especially on the *Halal Toyibbah* issues. Specify what is meant when an organization states that they are "HALAL certified".  
(2 marks)
- (b) Our government has initiated Halal Development Corporation (HDC) to introduce Malaysia as International Halal Hub. Explain the main role of HDC to achieve the objective.  
(4 marks)
- (c) List **four (4)** products that does not need Halal certification  
(4 marks)
- (d) Determine the relationship between MS1500:2004 and other quality assurance practice such as HACCP, GMP and GHP and how they contribute to Malaysian quality assurance.  
(10 marks)

- Q4** Pedas Berdesing Ketchup Sdn Bhd wants to use statistical process control (SPC) to monitor its bottle filling process. Every 30 minutes samples of five bottles from the production line are taken and the amount of ketchup in each bottle is measured. The results are reported in the **Table 1**.

**Table 1:**

	Sample				
	1	2	3	4	5
Volume in each bottle	340.4	340.5	339.2	338.7	340.7
	341.2	340.9	340.7	340.1	340.2
	340.9	340.2	339.2	340.3	340.5
	340.2	340.1	339.8	340.2	340.3
	339.5	340.5	339.5	340.5	340

- (a) Determine whether volume of ketchup in a bottle a variable or an attribute.  
(2 marks)
- (b) Plot the average bottle volume for each sample on the chart and determine a control limit of the samples  
(12 marks)
- (c) Is the process in control with respect to the average volume? What action should be taken?  
(2 marks)
- (d) Compare and contrast between specification limits and control limits  
(4 marks)

- Q5** The development of HACCP plan for food establishment begins with the construction of a flow diagram for the entire process.

**Table 2: Product description**

1	<b>Common name</b>	Frozen Cooked Beef Patties
2	<b>How is it to be used</b>	Reheated before eat
3	<b>Type of package</b>	Box
4	<b>Labeling instruction</b>	Keep refrigerated
5	<b>Ingredients</b>	Beef, onion, garlic paste, plain flour, egg, mixed herbs, canola oil
6	<b>Method</b>	Meat received from supplier and keep in refrigerator at 4.4°C. Then grind the meats to pre-specified size before mixing all ingredients well together. Shape into hamburger patties and cook over medium heat (71.1°C) with oil. After that freeze the patties at 0°C. At last, the beef patties are manually packed into boxes and ready for distribution.

- (a) Develop a flow chart of making frozen cooked beef patties according to the information given in **Table 2**.

(6marks)

- (b) A critical control point is defined as a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level. Determine critical control points (CCP) in the flow diagram and conduct a hazard analysis including preventive measures.

(14 marks)

**-END OF QUESTION-**

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**TABLE Q4**

Sample, <i>n</i>	$A_1$	$A_2$	$A_3$	$B_3$	$B_4$	$B_5$	$B_6$	$D_1$	$D_2$	$D_3$	$D_4$	$c_4$	$d_4$
2	2.121	1.880	2.659	0	3.267	0	2.606	0	3.686	0	3.267	0.7979	1.128
3	1.732	1.023	1.954	0	2.568	0	2.276	0	4.358	0	3.575	0.8862	1.693
4	1.500	0.729	1.628	0	2.266	0	2.088	0	4.698	0	2.282	0.9213	2.059
5	1.342	0.577	1.427	0	2.089	0	1.964	0	4.918	0	2.115	0.9400	2.326
6	1.225	0.483	1.287	0.030	1.970	0.029	1.874	0	5.078	0	2.004	0.9515	2.534
7	1.134	0.419	1.182	0.118	1.882	0.113	1.806	0.204	5.204	0.076	1.924	0.9594	2.704
8	1.061	0.373	1.099	0.185	1.761	0.179	1.751	0.338	5.306	0.136	1.864	0.9650	2.847
9	1.000	0.337	1.032	0.239	1.716	0.232	1.707	0.547	5.393	0.184	1.816	0.9693	2.970
10	0.949	0.308	0.975	0.284	1.679	0.276	1.669	0.687	5.469	0.223	1.777	0.9727	3.078
11	0.905	0.285	0.927	0.321	1.646	0.313	1.637	0.811	5.535	0.256	1.744	0.9754	3.173
12	0.866	0.266	0.886	0.354	1.618	0.346	1.610	0.922	5.594	0.283	1.717	0.9776	3.258
13	0.832	0.249	0.850	0.382	1.594	0.374	1.585	1.025	5.647	0.307	1.693	0.9794	3.336